McKinsey Global Institute

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Connecting Brazil to the world: A path to inclusive growth

The McKinsey Global Institute

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Connecting Brazil to the world: A path to inclusive growth

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Brazil in the global economy today …

7th
among world's largest economies by GDP

… but **95th** in GDP per capita

7th
in global FDI inflows

… but **30th**
in outflows

Share in global non-oil resource exports rose
from **5%** in 2002 to **9%** in 2012

Ranked **43rd**
in MGI's Connectedness Index

Ranked **114th**
by World Economic Forum
for quality of infrastructure

Ranked **124th**
by World Bank for ease
of trading across borders

… and the opportunity it could realize through greater global connections

Up to **1.25%**
potential boost to annual GDP growth

Executive summary

Just a few short years ago, Brazil was brimming with optimism, as rising global demand for resources led to an export and consumption boom. Thanks to an expansion of the social safety net and falling unemployment, the official poverty rate was cut in half. When GDP growth hit 7.5 percent in 2010, it seemed that finally the “sleeping giant” was wide awake.

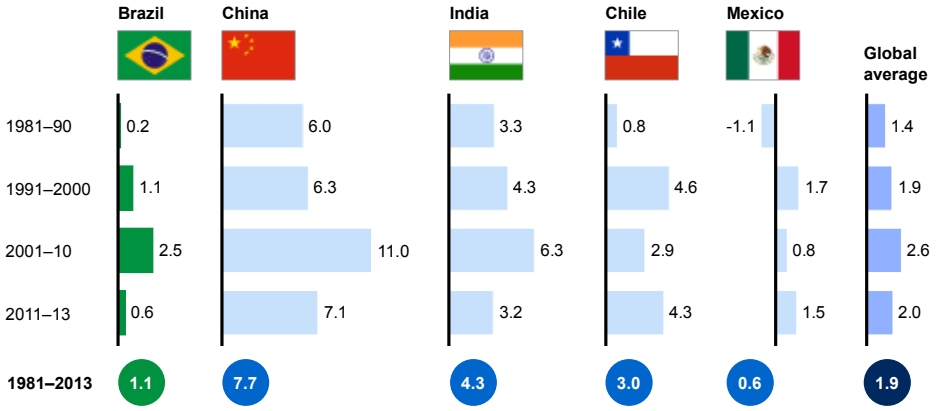
But Brazil’s GDP growth slowed dramatically beginning in 2012, bringing the longer-term issues of weak income growth and productivity performance to the forefront (Exhibit E1). Brazil has become the world’s seventh-largest economy, but it ranks only 95th in the world in GDP per capita. Most households have experienced only modest income growth, while inefficiencies and layers of taxes and tariffs push the prices of many consumer goods out of their reach. Having successfully lifted millions out of extreme poverty, Brazil now has to deliver on the promise of what a middle-class life really means. Productivity growth, which contributes to raising incomes and living standards, will be the key to empowering the aspiring middle class.

Exhibit E1

Brazil’s income growth has lagged behind the global average for decades

Real GDP per capita compound annual growth rate

%



SOURCE: The Conference Board Total Economy Database, 2014; McKinsey Global Institute analysis

In the next two decades, Brazil needs to average 4.2 percent annual GDP growth in order to lift half of the still vulnerable population solidly into middle class—and our estimates show that expanding its global ties could get Brazil roughly a third of the way to this goal. Based on an assessment of how global networks influence economic growth, we estimate that Brazil has an opportunity to add up to 1.25 percentage points to its average annual GDP growth in the years ahead.

Deeper integration into global markets and networks could provide competitive pressures that spur Brazilian companies to innovate, invest, and modernize. For decades, Brazil's economic policy has focused on protecting local industries and drawing on the strength of its vast and expanding domestic market. But its inward focus has come at a cost to international competitiveness. As Brazil prepares to welcome the world to two major global events, this is an opportune moment to reconsider that inward focus.

This year also marks a half century since the beginning of a period of military dictatorship—and a quarter century since dictatorship gave way to democratic elections. Brazil finds itself at another turning point today, facing a choice between maintaining the isolation of the past or embracing the opportunities that are emerging in a more deeply interconnected and knowledge-intensive global economy.

Seizing these opportunities will require addressing some of the country's long-standing and homemade barriers to growth, from infrastructure shortfalls to a byzantine tax and regulatory structure. But it will also involve looking to the future by reorienting trade policy toward key markets and finding more effective ways to harness natural resource wealth for investment. Brazil can take a new approach to its growth policies by following the blueprint it has already established in successfully opening its agriculture sector and building a globally competitive aerospace firm. It can also foster a culture of entrepreneurship and innovation to provide the economy with a much-needed jolt of dynamism. Today Brazil needs a new catalyst for growth that can deliver broad-based prosperity to the vast majority of its citizens—and that catalyst could be found beyond its borders.

The tailwinds that lifted Brazil's economy are slowing

Brazil has made great strides in economic development. The most striking achievement has been a dramatic reduction in the official poverty rate, driven in large part by the Bolsa Familia program. Yet there is growing concern about the country's ability to sustain growth over the long term, as the trends that lifted the economy over the past decade are losing steam.

A commodities boom fueled much of Brazil's recent GDP growth; the country's share of global non-oil resource exports rose from 5 percent in 2002 to 9 percent in 2012.[1] Today commodity prices remain high compared with their historic averages, but the exceptional surge in both demand and prices has leveled off. Brazil will benefit from its resource endowments for decades to come, but it cannot count on a continued boom. It could, however, make more effective use of future gains by investing in the foundations of growth and making adjacent industries more competitive.

Both private and government consumption have been on the rise, but much of it has been fueled by debt and taxes. Household debt has grown from 20 percent of income in 2005 to 43 percent of income in 2012, and high real interest rates (averaging 145 percent on credit cards) make this a heavy burden for consumers. On the government side, federal expenses increased from 15.7 percent of GDP in 2002 to 18.9 percent in 2013. But it will be difficult to continue increasing

1 UN Comtrade via World Integrated Trade Solution (WITS).

public spending through further taxes and debt. Taxes have already climbed from 29 percent of GDP in 1995 to 36 percent in 2013, the highest level among Brazil's emerging market peers, and issuing additional debt would be costly. As a share of GDP, Brazil's gross debt is less than a third that of Japan, one of the world's most indebted nations—but its debt service costs are almost 15 times as high.

Resource exports and credit-fueled consumption have not translated into higher investment or productivity. Between 2000 and 2011, Brazil's overall investment rate averaged 18 percent of GDP, below that of other developing economies such as Chile (23 percent) or Mexico (25 percent), and much below those of China (42 percent) and India (31 percent). Infrastructure spending continues to lag behind the global average, while high interest rates and the complexity of obtaining reasonable long-term financing (especially for small and medium-sized enterprises) have discouraged many businesses from investing in machinery, equipment, and technology that could boost efficiency. A strong currency—the flip side of success in exporting commodities—has made manufactured goods less competitive in foreign markets, further discouraging investment.

Productivity gains are the key to broad-based income growth that can translate into wider prosperity. But Brazil's productivity has been almost stagnant since 2000; today it is just over half the level achieved in Mexico. Brazil can create new momentum by taking action on some longstanding issues:

- **Lower the "Brazil cost."** In the World Bank's 2014 Doing Business index, Brazil ranks 116th out of 189 countries in terms of its regulatory burden. It fares even worse in the taxation category, where it ranks 159th in the world. It takes businesses a staggering 2,600 hours each year to prepare and declare taxes (vs. 318 hours in China and 259 hours in Indonesia). The costs to businesses are eventually passed on to consumers in the form of high prices and reduced purchasing power.

- **Continue to reduce the informal sector.** Smaller and less efficient firms operating in the gray market can gain cost advantages over more productive and law-abiding firms by ignoring quality and safety regulations or avoiding taxes. They also lack incentives to invest and achieve economies of scale. The informal sector is decreasing in size, but it still represents a continuing drag on productivity and calls for vigilant and ongoing enforcement.[2]

- **Expand infrastructure.** Brazil's investment in overall infrastructure has fallen from 5.4 percent of GDP in the 1970s to only 2.1 percent in the 2000s, while transportation infrastructure as a share of GDP has fallen steadily for decades from around 2 percent in the 1970s to less than 0.5 percent in the 2000s.[3] The nation's rail network is limited, and only 14 percent of its roads are paved. Lines of trucks waiting to load or unload cargo at Brazil's shipping ports can stretch for miles.

- **Build human capital.** Brazil has reached 95 percent enrollment in primary education but still trails other developing economies in educational attainment—and quality is a serious concern. Brazil ranked 57th in the 2012 Programme for International Student Assessment (PISA) testing of 15-year-

2 *How Brazil can grow*, McKinsey Global Institute, December 2006.

3 *Brazil infrastructure: Paving the way*, Morgan Stanley Blue Paper, Morgan Stanley Research Global, May 2010.

olds in 65 countries around the world. Only half of Brazilian students who enter high school go on to graduate.[4] A greater focus on education and vocational training will be crucial to Brazil's competitiveness and its ability to build more sophisticated industries.

Between 1990 and 2012, rising numbers of workers contributed 1.8 percent a year to Brazil's GDP growth. But the lift from the demographic dividend is tapering down as birth rates have declined and population is aging. In the next two decades, the expansion of the labor force is likely to contribute only 0.6 percent to average annual GDP growth—about a third of what it contributed over the past two decades. Unless it takes steps to boost productivity and become more competitive, Brazil's growth could decline to 1.8 percent a year. At the same time, Brazil's pension system is very generous by international standards,[5] and the fiscal pressure of maintaining these spending commitments will only increase in the years ahead.

Adopting a new growth agenda is vital to the economic empowerment of Brazil's citizens

Brazil needs to solidify its recent progress in poverty reduction and build a better life for the aspiring middle class. Even after its citizens rise above the official poverty line, they face an ongoing struggle to meet basic household needs. The high price of consumer goods is diminishing their purchasing power and has led millions of households into debt.

Recent MGI research exploring this issue in India offers a framework that is also relevant in Brazil. It proposes a new and more holistic measurement of poverty called the Empowerment Line, which estimates the minimum economic cost for a household to fulfill its basic needs.[6] Our initial estimate of the MGI Empowerment Line in Brazil (which takes into account the price of housing, food, transportation, education, and other basics) finds that it would take approximately R$19–R$27 in income per person per day (or R$1,900–R$2,700 per family per month) to attain an acceptable standard of living with a measure of economic security.[7] Our preliminary research indicates that approximately 50 to 70 percent of Brazil's population remains either poor or vulnerable to slipping back into poverty (Exhibit E2).

Social transfer programs alone cannot solve this challenge. Brazil will need to take steps to unleash faster growth in GDP per capita, create better-quality jobs, and raise purchasing power by lowering the price of consumer goods. Without a demographic lift, favorable terms of trade for resources, and credit-fueled

4 *School census 2007*, National Institute of Educational Research (INEP), Ministry of Education.

5 *Brazil: Selected issues paper*, International Monetary Fund, IMF Country Report number 12/192, July 2012.

6 *From poverty to empowerment: India's imperative for jobs, growth, and effective basic services*, McKinsey Global Institute, February 2014.

7 Roughly US$8–$12 per person per day, or US$800–$1,200 per family per month. Assumes average family size of 3.33, according to IBGE. There are multiple assessments of the vulnerability of the population rising from poverty. See Francisco H. G. Ferreira et al., *Economic mobility and the rise of the Latin American middle class*, World Bank, November 2012, which finds that the risk of falling back below the poverty line in Latin America is significantly reduced only when incomes rise above the threshold of $10 per capita per day.

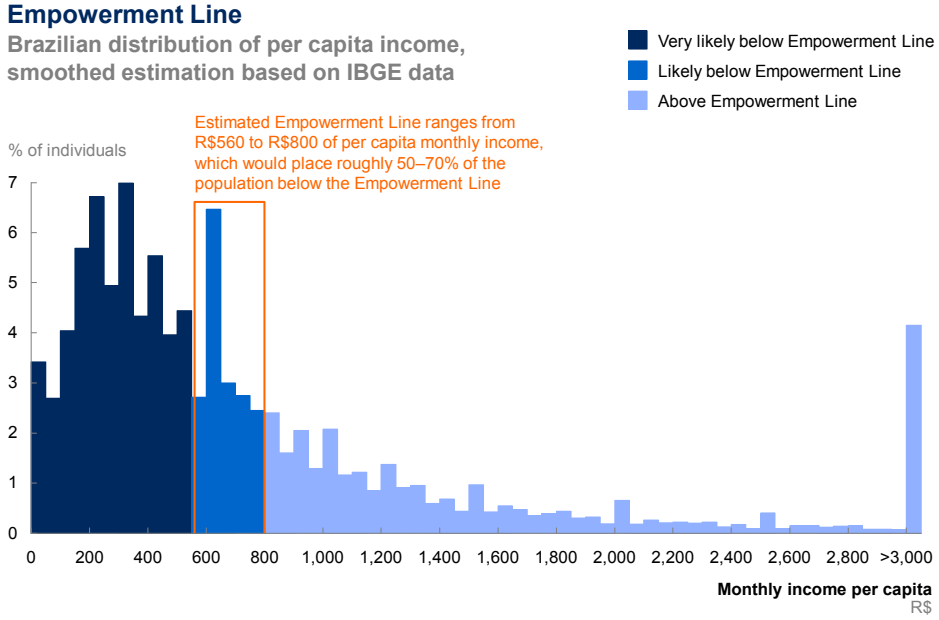
consumption to drive its economy, Brazil's productivity performance becomes the best line of defense for ensuring that the current stagnation does not become a long-term phenomenon.

If productivity growth maintains its current trajectory, GDP per capita will grow only 1.2 percent per year, far short of what is needed for most households to attain a better life. But if Brazil can achieve an average of 4.2 percent GDP growth in the next two decades, it can cut the share of population below the empowerment line by half. Doing so will require tripling the current rate of productivity growth; this could reduce population below empowerment to the range of 25 to 40 percent of the population (Exhibit E3).

Exhibit E2

Some 50 to 70 percent of the population falls below Brazil's estimated Empowerment Line

Brazilian distribution of per capita income, smoothed estimation based on IBGE data



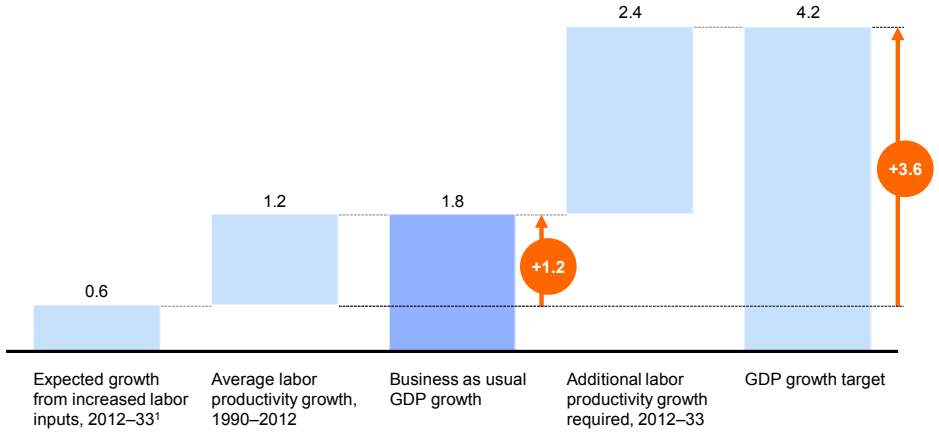
SOURCE: Instituto Brasileiro de Geografia e Estatística (IBGE); McKinsey Global Institute analysis

Exhibit E3

To lift half of the still-vulnerable population solidly into middle class, Brazil needs to step up productivity

Annual real GDP growth rates

%



1 Driven by additional workers joining the workforce due to demographics; employment rate assumed constant at 2012 level.

SOURCE: The Conference Board Total Economy Database 2013; McKinsey Global Institute analysis

The limited income growth of the expanding middle class is Brazil's greatest challenge—and its biggest untapped opportunity. Moving the bottom half of the pyramid to the "belly" of the middle class would build on the momentum of poverty reduction and create a source of sustainable and inclusive growth for the future.

Deepening Brazil's participation in global markets and global networks can provide the catalyst Brazil needs

Even as it has grown to become one of the world's largest economies, Brazil maintains relatively limited ties to the rest of the world beyond its resource exports. As new trade routes form, firms are racing to claim market share. Brazil, which needs a new catalyst for growth, cannot afford to be left behind.

To meet its goals for sustainable and inclusive growth, Brazil needs to continue looking for external opportunities. It has already benefited from rising resource demand, but there are other ways to ride the wave of global demand growth. In addition to entering new markets, Brazil can benefit from embracing the performance pressures that come with international competition. These effectively challenge local firms to evolve and become more efficient by, for example, implementing lean processes, investing in R&D, or integrating the latest technology. Global exposure also makes cheaper and more modern inputs available, and it enables companies to absorb more of the world's rapidly expanding flows of innovation, technology, research, and ideas.[8]

The global economy is increasingly characterized by an intricate web of connections that go far beyond the trade of goods. Flows of finance and services such as IT and business process outsourcing are expanding. Increasing numbers of tourists, students, and workers are crossing borders and exchanging ideas—and in the realm of digital communications, the concept of borders has all but disappeared. These evolving networks are redrawing the global economic landscape.

Recent MGI research finds that countries that are centrally connected within the various types of global networks can gain up to 40 percent more GDP growth from them than the least connected countries. But this same research ranks Brazil only 43rd in the world for "connectedness" (Exhibit E4).[9] Not only is there ample room for improvement, but pursuing greater openness and engagement in all types of cross-border exchanges could yield large opportunities for productivity enhancements and economic growth.

8 There is extensive literature on the relationship between competitiveness, trade openness, and productivity. See, for example, Richard E. Baldwin, *On the growth effects of import competition*, National Bureau of Economic Research working paper number 4045, April 1992; Philippa Dee et al., *The impact of trade liberalisation on jobs and growth*, OECD trade policy working paper number 107, January 2011; and Otaviano Canuto, Matheus Cavallari, and Jose Guilherme Reis, *Brazilian exports: Climbing down a competitiveness cliff*, World Bank policy research working paper number 6302, January 2013.

9 *Global flows in a digital age: How trade, finance, people, and data connect the world economy*, McKinsey Global Institute, April 2014.

Exhibit E4

MGI Connectedness Index

Selected countries, 2012[1]

Rank of participation by flow as measured by flow intensity and share of world total

Economy
- Developed
- Emerging

Connectivity Index Rank
- 1–10
- 11–25
- 26–50
- 51+

Rank	Country	Goods	Services	Financial	People (2010)	Data and communication (2013)
1	Germany	3	5	7	5	2
2	Hong Kong, China	1	4	3	14	(not available)
3	United States	8	9	5	1	7
4	Singapore	2	3	4	18	5
9	Russia	19	30	16	2	21
17	Australia	32	34	14	11	30
18	Malaysia	10	23	34	26	32
20	South Korea	7	14	25	58	34
25	China	5	21	6	93	33
27	Mexico	17	67	22	13	48
30	India	27	13	26	47	64
41	Chile	42	54	20	95	36
43	Brazil	39	40	18	115	38
47	Argentina	55	60	53	59	40
49	South Africa	43	50	49	56	73
56	Indonesia	31	49	39	113	65

1 Index calculations use migrants data for people flows and cross-border Internet traffic for data and communication flows.

SOURCE: Comtrade; IHS Economics & Country Risk; World Trade Organization; Telegeography; World Development Indicators, World Bank; McKinsey Global Institute analysis

Estimating the economic potential of greater global connectedness is, of course, an inexact science. This is in part because some of the steps required to deepen Brazil's connections with the global economy (such as infrastructure improvements) would also result in domestic productivity gains. But based on an assessment of how global networks influence economic growth, we estimate that Brazil has an opportunity to add up to 1.25 percentage points to its average annual GDP growth. In order for Brazil to cut the share of population below the empowerment line by half, it needs to generate 4.2 percent average annual GDP growth over the next two decades. Greater global connections could help Brazil get approximately one-third of the way toward this goal.

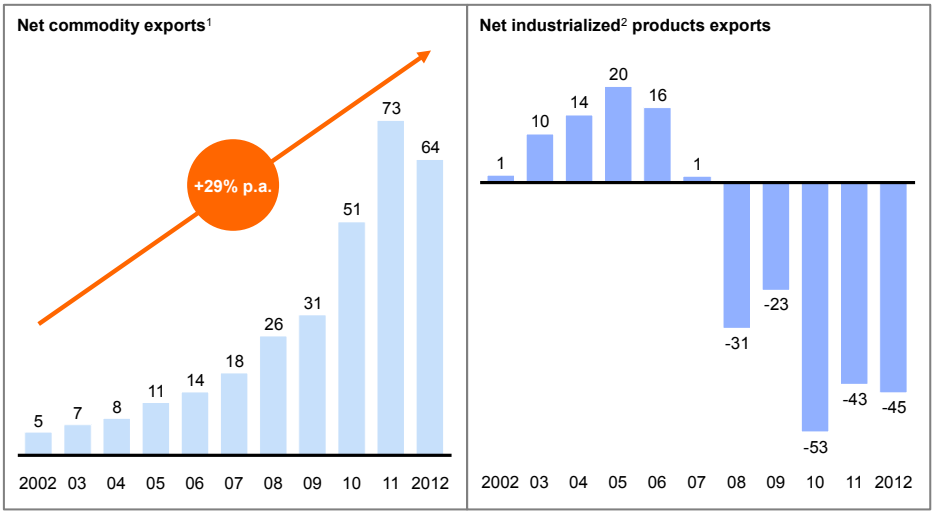
BY REMOVING BARRIERS AND EMBRACING COMPETITION, BRAZIL COULD INCREASE ITS SHARE OF GLOBAL TRADE

From 2005 to 2012, Brazil's commodities exports increased from $11 billion to $64 billion—but over the same period, a trade surplus of $20 billion in manufactured goods turned into a trade deficit of $45 billion (Exhibit E5). As the commodities boom caused the real to appreciate sharply, Brazilian goods have become less cost competitive in global markets. Brazil's exports are equivalent to 13 percent of GDP, far below India (24 percent) or Mexico (33 percent).

Exhibit E5

While Brazil's commodity exports have increased, its net exports of manufactured goods have declined sharply since 2005

$ billion



1 Non-industrialized products, according to external commerce ministry.
2 Industrialized products, according to external commerce ministry.
SOURCE: World Trade Organization; McKinsey Global Institute analysis

Brazil can assume a bigger role in global markets by addressing some of the barriers that have constrained trade growth. The World Bank ranks Brazil only 124th in the world for ease of trading across borders—and it notes that the cost of exporting a container from Brazil is $2,215, more than double the Organisation for Economic Co-operation and Development (OECD) country average.[10] This is mainly due to poor road and rail infrastructure combined with cumbersome procedures and inadequate capacity at Brazil's ports.

Demand for imports is constrained because tariffs inflate the cost of goods to Brazilian consumers. In 2011, Brazil's mean tariff rate was 7.8 percent, higher than its BRIC counterparts of Russia, India, China, and most of the developed world.[11] In addition, high federal and state taxes are applied to most products, including vehicles. As a result of all the various taxes levied, a Brazilian consumer will pay around 150 percent more than a US consumer to purchase a Toyota Corolla, even though it is produced locally. After releasing its PlayStation 4 in 2013 with a

10 *Doing business 2014: Understanding regulations for small and medium-size enterprises*, World Bank, 2013.

11 The rate is the average weighted mean tariff rate of all products; World Bank (China, 4 percent; Russia, 5 percent; Europe and the United States, 1 to 2 percent).

Brazilian price tag of $1,700, Sony explained that almost 50 percent of that cost was a result of taxes.[12]

Brazil has undertaken some trade liberalization, mainly after 1990, but reform has been uneven; some sectors remain heavily protected and taxed, while others have been more exposed to global market forces. Comparing sectors shows that openness to global competition has been more effective in boosting sector productivity.

The heavily protected automotive industry is a case in point. Brazil is the world's seventh-largest producer of automobiles, but it ranks 21st in automotive exports. Only 15 percent of vehicles manufactured in Brazil are exported—and a disproportionate share goes to Argentina, its Mercosur trading partner. High automobile import tariffs have encouraged foreign carmakers to establish production within Brazil and create local jobs, but this approach has not helped Brazil integrate into global value chains. Brazil's automotive industry now lags behind the productivity of peers such as Mexico, which has developed world-class assembly plants and rapidly gained global market share. Mexican auto plants churn out twice as many vehicles per worker as Brazilian plants, even though a much higher share of their output consists of mid-size and large vehicles, while Brazil's plants typically produce 85 percent of small cars.[13]

This performance stands in sharp contrast to Brazil's success in cultivating an aerospace industry. Embraer was created in 1969 as a state-owned company, and the government ensured its early growth by providing production contracts and imposing import tariffs. But in the case of aerospace, it also took concerted steps to develop specialized talent and to create R&D infrastructure for continuous innovation. Eventually the government reduced its direct involvement, and in 1994 the company was privatized. Since then, Embraer has gone head-to-head with global competitors for international contracts—and has thrived as a result. Today the company has offices, subsidiaries, and joint ventures around the world. Brazil has lifted import tariffs on aircraft components, allowing Embraer to source from global suppliers.

Brazil's agriculture sector, too, has grown more productive since it was gradually opened. Beginning in the early 1990s, Brazil began eliminating price controls and marketing boards that regulated production of certain crops; it also reduced export tariffs and import restrictions. This caused an initial wave of disruption, but the sector eventually reconfigured and emerged in stronger form. Brazilian farmers and agribusinesses took steps to boost their efficiency, generating positive spillover effects. Production of tractors and other agricultural equipment, for example, has quadrupled in the past three decades, and exports of these machines have increased 24-fold since 1970. Today the yields for Brazil's main crops are on a par with those of developed economies, thanks in part to a strong tradition of R&D in agriculture. Again, reducing direct market intervention and developing R&D muscle has paid off in higher productivity and increased exports.

12 Sony press release, October 2013.

13 Mexico's auto plants produce 53 cars per worker per year vs. 27 in Brazil, even though 85 percent of the cars produced in Brazil are small vs. 54 percent in Mexico. Associação Nacional dos Fabricantes de Veículos Automotores (ANFAVEA); Instituto Nacional de Estadística y Geografía (INEGI), Mexico; and Organisation Internationale des Constructeurs d'Automobiles (OICA).

BRAZIL ATTRACTS SIGNIFICANT FDI, BUT IT COULD HARNESS GREATER FLOWS OF VENTURE CAPITAL AND LONG-TERM FINANCING

With high volumes of inward foreign direct investment (FDI) and cross-border lending, Brazil is more closely linked to global capital markets than to other types of global networks. It ranks seventh among all countries in attracting FDI, with an annual average of some $57 billion in inflows from 2008 to 2012. Investment has flowed into commodity sectors such as mining and oil, but the lion's share has gone to manufacturing for Brazil's domestic market. FDI has brought in new technologies, innovation, and best practices developed in other countries, but it has not translated into significant exports in the same sectors.

Brazil can deepen the benefits of FDI and widen access to global financing. Foreign multinationals already have an exceptionally large existing presence in Brazil.[14] They can be important catalysts for productivity growth and global expansion among their local suppliers. Executives tend to prefer to move to locations where multinationals are already present, and with improved infrastructure and business climate, Brazil can build on its current base to attract additional competitive manufacturing and service firms. But Brazil should reconsider its approach to realizing the benefits multinationals can bring. As the auto industry example illustrates, the protection afforded by high tariffs on imports has raised domestic prices without making local production (even by multinationals) globally competitive. The lessons learned from Embraer and the agriculture sector suggest that Brazil can become a more successful base of production for multinationals by investing in local expertise and R&D while relying on competitive pressures from global markets to encourage productivity.

Inward FDI could also be channeled to more innovative sectors. Today there is a growing trend toward cross-border flows of venture capital, and improving mechanisms that connect Brazilian entrepreneurs with foreign investors could propel growth. In addition, further developing Brazil's capital markets could attract global investment to meet the economy's long-term financing needs, particularly in infrastructure.

WITHIN TRADED SERVICES, BRAZIL HAS A UNIQUE OPPORTUNITY TO CAPTURE A GREATER SHARE OF GLOBAL TOURISM

Brazil has a lower participation in the global trade of services than most of its peers. Service exports represent 1.8 percent of Brazil's GDP, below the Latin American average of 4.1 percent and far below India's 8 percent. Language barriers are one constraint: not only is Brazil the only Portuguese-speaking nation in Latin America, but one global survey ranked Brazil 38th out of 60 countries for English-language fluency.[15] To increase its ability to do business globally, Brazil will need to expand foreign-language skills.

Within traded services, the most immediate opportunity is growing Brazil's tourism industry. Since 1999, the country has lost 38 percent of its share of South America's inbound tourism and 30 percent of its share of world inbound tourism.

14 São Paulo ranks sixth in the world for its number of large foreign subsidiaries, the top city among all emerging markets. *Urban world: The shifting global business landscape*, McKinsey Global Institute, October 2013.

15 English Proficiency Index, Education First, 2013.

However, the World Cup and the Olympics are about to provide a once-in-a-lifetime boost in global visibility and media coverage, and it will be crucial for Brazil to sustain that momentum. The government can play a coordinating role and make targeted infrastructure investments, following the successful templates that have been set by other destinations such as Mexico and Dubai. Regaining just the share of world tourism it has lost since 1999 could add 0.25 percentage points to Brazil's annual GDP growth through 2030.

TAPPING INTO DIGITAL AND PEOPLE FLOWS COULD STRENGTHEN BRAZIL'S CAPACITY FOR INNOVATION AND ENTREPRENEURSHIP

Brazil is increasingly relying on exports of raw primary goods rather than moving up the value chain with exports of more sophisticated, skill-intensive products. This is cause for concern, since research has shown that producing and exporting more sophisticated goods is correlated with economic growth.[16] To create higher-quality jobs and increase productivity over the long term, Brazil needs to promote entrepreneurship and innovation. Digital and people flows represent valuable exchanges of ideas, innovation, and skills, and policy makers and business leaders must consider how to harness their potential to push the boundaries of innovation.

Global flows of data and communication are becoming critical to productivity and growth. As more of our world is transformed into digital form, new online platforms have emerged for e-commerce, file sharing, collaboration, and finance. There is growing trade in digital goods, and digital tracking is transforming the way physical goods are traded. Individuals, small firms, and entrepreneurs now have lower barriers to participating directly in the global economy. Brazil cannot afford to miss out on these trends.

Brazil is rapidly becoming a digital nation, which offers a solid starting point. Its online population has quadrupled over the past decade, and today almost 50 percent of Brazilians have regular Internet access. There are more than 60 million Facebook users in Brazil, which is more than 30 percent of the population. Perhaps the next global social media company will be founded in Brazil (and not by a Brazilian who moved to San Francisco, as Instagram co-founder Mike Krieger did).

But Brazil is not highly connected to international data flows, which underpin the cross-border exchange of goods, services, capital, and people. Its international data traffic per inhabitant is only 5 percent of what flows through Germany, the global leader. Yet the intensity of domestic use shows that Brazil has the potential to play a bigger role in the digital economy.

Global talent and knowledge pools are increasingly connected through digital networks. Digital technologies have made it possible to collaborate remotely on new scientific theories and innovations, but Brazilian scholars have produced relatively few academic articles with foreign coauthors. International student

16 See, for example, Ricardo Hausmann, Jason Hwang, and Dani Rodrik, "What you export matters," *Journal of Economic Growth*, volume 12, issue 1, 2007; Ricardo Hausmann and Cesar Hidalgo et al., *The atlas of economic complexity: Mapping paths to complexity*, MIT Press, 2011; and Rahul Anand, Saurabh Mishra, and Nikola Spatafora, *Structural transformation and the sophistication of production*, IMF working paper number 12/59, February 2012.

exchanges are an important mechanism for initiating this kind of collaboration, as well as building personal business relationships and acquiring advanced skills. Since 1999, the number of Brazilian students studying abroad has almost doubled. Programs such as *Ciência sem Fronteiras* (Science Without Borders) can continue to build this trend and promote innovation.

Skilled migrants have been critical to the growth of some of the world's leading hubs of technology and innovation, from Silicon Valley to Ireland, India, and Taiwan. Already a leader in the life sciences, Israel is now building capabilities in the emerging field of neurotechnology, in part by attracting leading international scientists.

Brazil can do more to attract the best foreign talent. Although it is a nation with an immigrant heritage, only 0.5 percent of Brazil's workforce is foreign born, down from more than 5 percent in the early 1900s. But according to the Ministry of Labor and Employment, the number of temporary work permits increased 137 percent over the three years to 2012. These immigrants tend to be highly qualified managers and supervisors, and an increasing share of them have master's degrees or PhDs. Brazil could grow these numbers in a way that contributes to its long-term growth and productivity by adopting a more comprehensive skills-based approach to immigration. Meeting industry's needs for college-educated workers today can also facilitate the transfer of skills to their companies and colleagues—thus building capabilities for the future.

How Brazil can connect, compete, and thrive

Our research points to seven major priorities that could allow Brazil to restore growth, become more competitive, and sustain broad-based prosperity.

1. **Shift the focus of economic development to investment.** Resource windfalls and rising debt will no longer be able to sustain consumption-led growth. For the middle class to make real income gains, Brazil has to expand the productive capacity of the economy by investing in infrastructure, machinery, and skills. This requires boosting domestic savings and making it more attractive for companies and individuals to invest—by simplifying unnecessary red tape, more closely integrating states into a single domestic market, and creating incentives for capital and R&D investments. Brazil will continue to benefit from its rich resource endowments and could draw on them for building a more diversified and resilient base for long-term growth.

2. **Reorient trade policy to achieve closer integration with major markets.** In recent years, Brazil has increasingly focused on establishing international trade partnerships with other developing economies and strengthening the Mercosur trade bloc. But its emphasis on forging "South-South" agreements is not likely to open up large markets for high-value trade in the near term. Pursuing agreements with larger and more developed markets would allow Brazil to increase trade volumes, integrate more fully into the production networks of multinationals, and increase its access to leading-edge technology and processes. Brazil has spent a decade negotiating with the European Union (EU) on an agreement that is still not finalized, and no talks are under way with the United States. Policy makers will need to re-evaluate

the trade barriers that prevent Brazil from connecting with the most potentially valuable markets.

3. **Redesign growth policies to compete in a more global and knowledge-intensive economy.** Government subsidies for certain industries now total almost 6 percent of GDP. Subsidies, import tariffs, local content requirements, "Buy Brazilian" procurement rules, and similar policies have introduced distortions and disincentives for companies to modernize. Brazil will need to rationalize this system and shift the focus from protecting incumbents to building competitiveness. A more effective pro-growth policy requires assessing its current competitive strengths and determining which industries are best positioned to move up the value chain and create positive spillover effects in related industries. Brazil's key advantages include not just its rich resources but a large consumer market as well as diverse and well-developed manufacturing and industrial sectors. Policy makers will need to cultivate distinctive skills to make non-resource industries competitive, and make sure the necessary foundation of physical, regulatory, and financial infrastructure is in place for growth. To create an ecosystem that encourages innovation, Brazil can become more connected to global flows of data and knowledge as well as boost its R&D investment, which is currently below the world average for upper-middle-income countries. A focus on higher-value-added products and services can help Brazil's economy become more modern, diversified, and resilient.

4. **Build 21st-century infrastructure that integrates Brazil's economy and connects it to the world.** One of the most important opportunities to improve Brazil's global competitiveness and increase trade connections lies with addressing its transportation network. Brazil needs a long-term, integrated national infrastructure plan that is insulated from shifting political agendas. One option to consider is an independent oversight body that could prioritize the most important projects while considering how overall systems should work together. Brazil will need to explore new funding models and focus on efficiency and execution to attract a greater share of private investment. Projects in Brazil are constantly interrupted for various reasons, but this issue can be controlled by establishing clear and appropriate procedures for challenges and setting strict time limits for resolution. The infrastructure planning process should also consider strategies for maximizing and refurbishing existing assets, which may offer a better return on investment than new construction.

5. **Improve competitiveness by lowering the "Brazil cost."** Brazil has erected too many homemade barriers to growth, and its business environment needs serious reform to match the ease of doing business offered by other countries. Transparency is a key element; where trading procedures and payment requirements are clear, for example, customs brokers and trade consultants are less necessary. Brazil could also benefit from revisiting its tax structure—not only to reconsider taxation levels through the lens of global competition but also to simplify its convoluted, multilayered tax code. Gradually removing steep import tariffs on certain products (such as auto parts and vehicles) could allow Brazil to find new growth markets for its products. These tariffs are not applied consistently across all products and sectors, and a careful review is needed to ensure that Brazil opens the most relevant and competitive industry sectors.

6. **Make the public sector more productive.** When Brazilians took to the streets in the summer of 2013, they were expressing widespread frustration with the poor quality of public services they receive in return for their taxes. Citizens are demanding better performance from their schools, transit systems, and the public health system. One critical step toward achieving that is implementing more robust and flexible systems for managing government workers at all levels. Rethinking the public sector's overall incentive structure can shift the focus from following procedures to achieving clearly defined results. Few of Brazil's government departments have gone fully digital, so there is ample room to make large gains in efficiency by integrating technology solutions.

7. **Focus on education and training to develop human capital.** Brazil needs a skilled and productive workforce that can continuously deliver products that keep pace with a fast-changing marketplace and incorporate the latest generations of technology. While the country has made great strides in expanding primary education, there is still a long way to go in terms of reducing dropout rates, improving learning outcomes, and expanding secondary and tertiary education. The private sector can play a role in expanding training programs and apprenticeships; it can also partner with local education providers to design curricula targeted to the workforce skills that are in demand. A greater emphasis on developing human capital would have the double benefit of making Brazil's industries more competitive while also creating better career pathways and widening economic opportunity for all Brazilians.

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Brazil's economic development has reached an inflection point. With extreme poverty in decline, the next challenge will be delivering higher living standards for the entire population. Now that the drivers of its recent economic growth are running out of steam, Brazil will have to accelerate productivity growth—and building deeper connections with the rest of the global economy could provide the opening to do just that. The task of "connecting Brazil" has multiple dimensions. At its most basic level, it is about dismantling barriers to increase the movement of goods. But it also entails becoming more deeply immersed in the world's flows of ideas, innovation, and people. To shake off its current stagnation, Brazil needs a broader and more integrated vision that looks across markets and across the world.

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